WHAT IS CLAIMED IS:

1. A method for generating a service level agreement delay value for a network, comprising:

receiving a set of network delay samples;

generating a path delay for a path through the network over a specified time period using the set of network delay samples;

generating a confidence interval for the path delay using the specified time period, the set of network delay samples, and a confidence level; and

generating the service level agreement delay value using the path delay and the confidence interval.

2. The method of claim 1, further comprising applying a data sieve to the set of network delay samples.

3. The method of claim 1 wherein the specified time period is a path busy period for the path.

4. The method of claim 3, wherein determining a path busy period further includes:

receiving a time period;

generating a first path delay over the time period at a first time point using the set of network delay samples;

generating a second path delay over the time period at a second time point using the set of network delay samples; and

generating the path busy period by comparing the first path delay to the second path delay.

5. The method of claim 4, wherein generating a path delay at a time point further includes:

determining a set of trunks included in the path;

for each trunk in the set of trunks, performing the following:

generating a trunk delay for a trunk over the time period at the time point using the set of network delay samples; and

adding the trunk delay to the path delay.

6. The method of claim 1, wherein generating a confidence interval for the path delay further includes:

determining a set of trunks included in the path;

generating a set of trunk delay standard deviations from the set of trunks for the specified time period using the set of network delay samples;

generating a path delay standard deviation using the set of trunk delay standard deviations; and

generating the confidence interval using the path delay standard deviation and the confidence level.

7. A method for monitoring a network, comprising:

receiving a set of network delay samples;

generating a path busy period for a path through the network using the set of network delay samples;

generating a path delay for the path using the path busy period and the set of network delay samples;

generating a path delay standard deviation using the path delay, path busy period, and the set of network delay samples;

generating a coefficient of variation for the path delay using the path delay and the path standard deviation; and

generating an alert by comparing the coefficient of variation to a threshold coefficient of variation value.

8. The method of claim 7, further comprising applying a data sieve to the set of network delay samples.

9. The method of claim 7, wherein generating a path busy period further includes:

receiving a time period;

generating a first path delay over the time period at a first time point using the set of network delay samples;

generating a second path delay over the time period at a second time point using the set of network delay samples; and

generating the path busy period by comparing the first path delay to the second path delay.

10. The method of claim 9, wherein generating a path delay at a time point further includes:

determining a set of trunks included in the path;

for each trunk in the set of trunks, performing the following:

generating a trunk delay over the time period at the time point using the set of network delay samples; and

adding the trunk delay to the path delay.

11. The method of claim 7, wherein generating a path delay standard deviation further includes:

determining a set of trunks included in the path;

generating a set of trunk delay standard deviations from the set of trunks for the path busy period using the set of network delay samples; and

generating a path delay standard deviation using the set of trunk delay standard deviations.

12. A method for monitoring a network, comprising:

receiving a set of network delay samples;

generating a path busy period for a path through the network using the set of network delay samples;

generating a confidence interval for the path using the path busy period, the set of network delay samples, and a confidence level;

generating a busy period path delay for the path using the path busy period, the set of network delay samples, and the confidence interval; and

comparing the busy period path delay to a busy period path delay baseline including a plurality of previously generated busy period path delays.

13. The method of claim 12, further comprising applying a data sieve to the set of network delay samples.

14. The method of claim 12, wherein generating a path busy period further includes:

receiving a time period;

generating a first path delay over the time period at a first time point using the set of network delay samples;

generating a second path delay over the time period at a second time point using the set of network delay samples; and

generating the path busy period by comparing the first path delay to the second path delay.

15. The method of claim 14, wherein generating a path delay at a time point further includes:

determining a set of trunks included in the path;

for each trunk in the set of trunks, performing the

following:

generating a trunk delay over the time period at the time point using the set of network delay samples; and

adding the trunk delay to the path delay.

16. The method of claim 12, wherein generating a confidence interval for the path further includes:

determining a set of trunks included in the path;

generating a set of trunk delay standard deviations from the set of trunks for the path busy period using the set of network delay samples;

generating a path delay standard deviation using the set of trunk delay standard deviations; and

generating the confidence interval using the path delay standard deviation and the confidence level.

17. A method for monitoring a network, comprising:

receiving a set of network delay samples;

generating a trunk busy period for a trunk in the network using the set of network delay samples;

generating a trunk delay for the trunk using the trunk busy period and the set of network delay samples;

generating a trunk delay standard deviation using the trunk delay, trunk busy period, and the set of network delay samples;

generating a coefficient of variation for the trunk using the trunk delay and the trunk standard deviation; and

generating an alert by comparing the coefficient of variation to a threshold coefficient of variation value.

18. The method of claim 17, further comprising applying a data sieve to the set of network delay samples.

19. The method of claim 17, wherein generating a trunk busy period further includes:

receiving a time period;

generating a first trunk delay over the time period at a first time point using the set of network delay samples;

generating a second trunk delay over the time period at a second time point using the set of network delay samples; and

generating the trunk busy period by comparing the first trunk delay to the second trunk delay.

20. A method for monitoring a network, comprising:

receiving a set of network delay samples;

generating a trunk busy period for a trunk included in the network using the set of network delay samples;

generating a confidence interval for the trunk using the trunk busy period, the set of network delay samples, and a confidence level;

generating a busy period trunk delay for the trunk using the trunk busy period, the set of network delay samples, and the confidence interval; and

comparing the busy period trunk delay to a busy period trunk delay baseline including a plurality of previously generated busy period trunk delays.

21. The method of claim 20, further comprising applying a data sieve to the set of network delay samples.

22. The method of claim 20, wherein generating a trunk busy period further includes:

receiving a time period;

generating a first trunk delay over the time period at

a first time point using the set of network delay samples;

generating a second trunk delay over the time period at a second time point using the set of network delay samples; and

generating the trunk busy period by comparing the first trunk delay to the second trunk delay.

23. A method for generating a service level agreement delay value for a network, comprising:

receiving a set of network delay samples;

applying a data sieve to the set of network delay samples;

generating a path busy period for a path through the network by performing the following:

receiving a time period,

generating a first path delay over the time period at a first time point using the set of network delay samples,

generating a second path delay over the time period at a second time point using the set of network delay samples, and

generating the path busy period by comparing the first path delay to the second path delay;

generating a confidence interval for the path delay by performing the following:

determining a set of trunks included in the path;

generating a set of trunk delay standard deviations from the set of trunks for the path busy period using the set of network delay samples,

generating a path delay standard deviation using the set of trunk delay standard deviations, and

generating the confidence interval using the path delay standard deviation and the confidence level; and

generating the service level agreement delay value using the path delay and the confidence interval.

24. The method of claim 23, wherein generating a path delay at a time point further includes:

determining a set of trunks included in the path;

for each trunk in the set of trunks, performing the following:

generating a trunk delay for a trunk over the time period at the time point using the set of network delay samples; and

adding the trunk delay to the path delay.

25. A method for monitoring a network, comprising:

receiving a set of network delay samples;

applying a data sieve to the set of network delay samples;

generating a path busy period for a path through the network by performing the following:

receiving a time period,

generating a first path delay over the time period at a first time point using the set of network delay samples,

generating a second path delay over the time period at a second time point using the set of network delay samples, and

generating the path busy period by comparing the first path delay to the second path delay;

generating a confidence interval for the path delay by performing the following:

determining a set of trunks included in the path;

generating a set of trunk delay standard deviations from the set of trunks for path busy period

using the set of network delay samples,

generating a path delay standard deviation using the set of trunk delay standard deviations, and

generating the confidence interval using the path delay standard deviation and the confidence level;

generating a coefficient of variation for the path delay using the path delay and the path standard deviation; and

generating an alert by comparing the coefficient of variation to a threshold coefficient of variation value.

26. The method of claim 25, wherein generating a path delay at a time point further includes:

determining a set of trunks included in the path;

for each trunk in the set of trunks, performing the following:

generating a trunk delay over the time period at the time point using the set of network delay samples; and

adding the trunk delay to the path delay.

27. A data processing apparatus adapted for generating a service level agreement delay value for a network, comprising:

a processor; and

a memory operably coupled to the processor and having program instructions stored therein, the processor being operable to execute the program instructions, the program instructions including:

receiving a set of network delay samples;

generating a path delay for a path through the network over a specified time period using the set of network delay samples;

generating a confidence interval for the path

delay using the path delay, the specified time period, the set of network delay samples, and a confidence level; and

generating the service level agreement delay value using the path delay and the confidence interval.

28. The data processing apparatus of claim 27, the program instructions further including applying a data sieve to the set of network delay samples.

29. The data processing apparatus of claim 27 wherein the specified time period is a path busy period for the path.

30. The data processing apparatus of claim 29, wherein the program instructions for determining a path busy period further include:

receiving a time period;

generating a first path delay over the time period at a first time point using the set of network delay samples;

generating a second path delay over the time period at a second time point using the set of network delay samples; and

generating the path busy period by comparing the first path delay to the second path delay.

31. The data processing apparatus of claim 30, wherein the program instructions for generating a path delay at a time point further include:

determining a set of trunks included in the path;

for each trunk in the set of trunks, performing the following:

generating a trunk delay for a trunk over the

time period at the time point using the set of network delay samples; and

adding the trunk delay to the path delay.

32. The data processing apparatus of claim 27, wherein generating a confidence interval for the path delay further includes:

determining a set of trunks included in the path;

generating a set of trunk delay standard deviations from the set of trunks for the specified time period using the set of network delay samples;

generating a path delay standard deviation using the set of trunk delay standard deviations; and

generating the confidence interval using the path delay standard deviation and the confidence level.

33. A data processing apparatus adapted for monitoring a network, comprising:

a processor; and

a memory operably coupled to the processor and having program instructions stored therein, the processor being operable to execute the program instructions, the program instructions including:

receiving a set of network delay samples;

generating a path busy period for a path through the network using the set of network delay samples;

generating a path delay for the path using the path busy period and the set of network delay samples;

generating a path delay standard deviation using the path delay, path busy period, and the set of network delay samples;

generating a coefficient of variation for the path delay using the path delay and the path standard

deviation; and

generating an alert by comparing the coefficient of variation to a threshold coefficient of variation value.

34. The data processing apparatus of claim 33, the program instructions further including applying a data sieve to the set of network delay samples.

35. The data processing apparatus of claim 33, wherein the program instructions for generating a path busy period further include:

receiving a time period;

generating a first path delay over the time period at a first time point using the set of network delay samples;

generating a second path delay over the time period at a second time point using the set of network delay samples; and

generating the path busy period by comparing the first path delay to the second path delay.

36. The data processing apparatus of claim 35, wherein the program instructions for generating a path delay at a time point further include:

determining a set of trunks included in the path;

for each trunk in the set of trunks, performing the following:

generating a trunk delay over the time period at the time point using the set of network delay samples; and

adding the trunk delay to the path delay.

37. The data processing apparatus of claim 36, wherein the

program instructions for generating a path delay standard deviation further include:

determining a set of trunks included in the path;

generating a set of trunk delay standard deviations from the set of trunks for the path busy period using the set of network delay samples; and

generating a path delay standard deviation using the set of trunk delay standard deviations.

38. A data processing apparatus adapted for monitoring a network, comprising:

a processor; and

a memory operably coupled to the processor and having program instructions stored therein, the processor being operable to execute the program instructions, the program instructions including:

receiving a set of network delay samples;

generating a path busy period for a path through the network using the set of network delay samples;

generating a confidence interval for the path using the path busy period, the set of network delay samples, and a confidence level;

generating a busy period path delay for the path using the path busy period, the set of network delay samples, and the confidence interval; and

comparing the busy period path delay to a busy period path delay baseline including a plurality of previously generated busy period path delays.

39. The data processing apparatus of claim 38, the program instructions further including applying a data sieve to the set of network delay samples.

40. The data processing apparatus of claim 38, wherein the program instructions for generating a path busy period further include:

receiving a time period;

generating a first path delay over the time period at a first time point using the set of network delay samples;

generating a second path delay over the time period at a second time point using the set of network delay samples; and

generating the path busy period by comparing the first path delay to the second path delay.

41. The data processing apparatus of claim 40, wherein the program instructions for generating a path delay at a time point further include:

determining a set of trunks included in the path;

for each trunk in the set of trunks, performing the following:

generating a trunk delay over the time period at the time point using the set of network delay samples; and

adding the trunk delay to the path delay.

42. The data processing apparatus of claim 38, wherein the program instructions for generating a confidence interval for the path further include:

determining a set of trunks included in the path;

generating a set of trunk delay standard deviations from the set of trunks for the path busy period using the set of network delay samples;

generating a path delay standard deviation using the set of trunk delay standard deviations; and

generating the confidence interval using the path

delay standard deviation and the confidence level.

43. A data processing apparatus adapted for monitoring a network, comprising:

a processor; and

a memory operably coupled to the processor and having program instructions stored therein, the processor being operable to execute the program instructions, the program instructions including:

receiving a set of network delay samples;

generating a trunk busy period for a trunk in the network using the set of network delay samples;

generating a trunk delay for the trunk using the trunk busy period and the set of network delay samples;

generating a trunk delay standard deviation using the trunk delay, trunk busy period, and the set of network delay samples;

generating a coefficient of variation for the trunk using the trunk delay and the trunk standard deviation; and

generating an alert by comparing the coefficient of variation to a threshold coefficient of variation value.

44. The data processing apparatus of claim 43, the program instructions further including applying a data sieve to the set of network delay samples.

45. The data processing apparatus of claim 43, wherein the program instructions for generating a trunk busy period further include:

receiving a time period;

generating a first trunk delay over the time period at a first time point using the set of network delay samples;

generating a second trunk delay over the time period at a second time point using the set of network delay samples; and

generating the trunk busy period by comparing the first trunk delay to the second trunk delay.

46. A data processing apparatus adapted for monitoring a network, comprising:

a processor; and

a memory operably coupled to the processor and having program instructions stored therein, the processor being operable to execute the program instructions, the program instructions including:

receiving a set of network delay samples;

generating a trunk busy period for a trunk included in the network using the set of network delay samples;

generating a confidence interval for the trunk using the trunk busy period, the set of network delay samples, and a confidence level;

generating a busy period trunk delay for the trunk using the trunk busy period, the set of network delay samples, and the confidence interval; and

comparing the busy period trunk delay to a busy period trunk delay baseline including a plurality of previously generated busy period trunk delays.

47. The data processing apparatus of claim 45, wherein the program instructions for generating a trunk busy period further includes:

receiving a time period;

generating a first trunk delay over the time period at a first time point using the set of network delay samples;

generating a second trunk delay over the time period at a second time point using the set of network delay samples; and

generating the trunk busy period by comparing the first trunk delay to the second trunk delay.

48. A data processing apparatus adapted for generating a service level agreement delay value, comprising:

a processor; and

a memory operably coupled to the processor and having program instructions stored therein, the processor being operable to execute the program instructions, the program instructions including:

receiving a set of network delay samples;

applying a data sieve to the set of network delay samples;

generating a path busy period for a path through the network by performing the following:

receiving a time period,

generating a first path delay over the time period at a first time point using the set of network delay samples,

generating a second path delay over the time period at a second time point using the set of network delay samples, and

generating the path busy period by comparing the first path delay to the second path delay;

generating a confidence interval for the path delay by performing the following:

determining a set of trunks included in the path;

generating a set of trunk delay standard deviations from the set of trunks for the path busy period using the set of network delay samples,

generating a path delay standard deviation using the set of trunk delay standard deviations, and

generating the confidence interval using the path delay standard deviation and the confidence level; and

generating the service level agreement delay value using the path delay and the confidence interval.

49. The data processing apparatus of claim 48, wherein the program instructions for generating a path delay at a time point further include:

determining a set of trunks included in the path;

for each trunk in the set of trunks, performing the following:

generating a trunk delay for a trunk over the time period at the time point using the set of network delay samples; and

adding the trunk delay to the path delay.

50. A data processing apparatus adapted for monitoring a network, comprising:

a processor; and

a memory operably coupled to the processor and having program instructions stored therein, the processor being operable to execute the program instructions, the program instructions including:

receiving a set of network delay samples;

applying a data sieve to the set of network delay samples;

generating a path busy period for a path through the network by performing the following:

receiving a time period,

generating a first path delay over the time period at a first time point using the set of network delay samples,

generating a second path delay over the time period at a second time point using the set of network delay samples, and

generating the path busy period by comparing the first path delay to the second path delay;

generating a confidence interval for the path delay by performing the following:

determining a set of trunks included in the path,

generating a set of trunk delay standard deviations from the set of trunks for path busy period using the set of network delay samples,

generating a path delay standard deviation using the set of trunk delay standard deviations, and

generating the confidence interval using the path delay standard deviation and the confidence level;

generating a coefficient of variation for the path delay using the path delay and the path standard deviation; and

generating an alert by comparing the coefficient of variation to a threshold coefficient of variation value.

51. The data processing apparatus of claim 50, wherein the program instructions for generating a path delay at a time point further include:

determining a set of trunks included in the path;

for each trunk in the set of trunks, performing the following:

generating a trunk delay over the time period at the time point using the set of network delay samples; and

adding the trunk delay to the path delay.

52. A computer readable media embodying program instructions for execution by a data processing apparatus, the program instructions adapting a data processing apparatus for generating a service level agreement delay value, the program instructions comprising:

receiving a set of network delay samples;

applying a data sieve to the set of network delay samples;

generating a path busy period for a path through the network by performing the following:

receiving a time period,

generating a first path delay over the time period at a first time point using the set of network delay samples,

generating a second path delay over the time period at a second time point using the set of network delay samples, and

generating the path busy period by comparing the first path delay to the second path delay;

generating a confidence interval for the path delay by performing the following:

determining a set of trunks included in the path;

generating a set of trunk delay standard deviations from the set of trunks for the path busy period using the set of network delay samples,

generating a path delay standard deviation using the set of trunk delay standard deviations, and

generating the confidence interval using the path delay standard deviation and the confidence level; and

generating the service level agreement delay value using the path delay and the confidence interval.

53. The computer readable media of claim 52, wherein the program instructions for generating a path delay at a time point further include:

determining a set of trunks included in the path;

for each trunk in the set of trunks, performing the following:

generating a trunk delay for a trunk over the time period at the time point using the set of network delay samples; and

adding the trunk delay to the path delay.

54. A computer readable media embodying program instructions for execution by a data processing apparatus, the program instructions adapting a data processing apparatus for monitoring a network, the program instructions comprising:

receiving a set of network delay samples;

applying a data sieve to the set of network delay samples;

generating a path busy period for a path through the network by performing the following:

receiving a time period,

generating a first path delay over the time period at a first time point using the set of network

delay samples,

generating a second path delay over the time period at a second time point using the set of network delay samples, and

generating the path busy period by comparing the first path delay to the second path delay;

generating a confidence interval for the path delay by performing the following:

determining a set of trunks included in the path,

generating a set of trunk delay standard deviations from the set of trunks for path busy period using the set of network delay samples,

generating a path delay standard deviation using the set of trunk delay standard deviations, and

generating the confidence interval using the path delay standard deviation and the confidence level;

generating a coefficient of variation for the path delay using the path delay and the path standard deviation; and

generating an alert by comparing the coefficient of variation to a threshold coefficient of variation value.

55. The computer readable media of claim 54, wherein the program instructions for generating a path delay at a time point further include:

determining a set of trunks included in the path;

for each trunk in the set of trunks, performing the following:

generating a trunk delay over the time period at the time point using the set of network delay samples; and

adding the trunk delay to the path delay.